

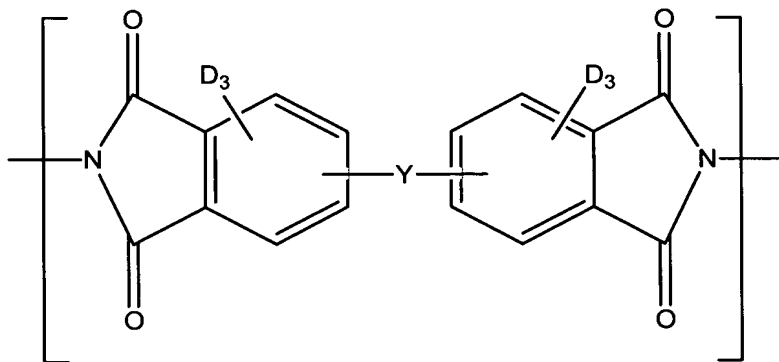
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original) A deuterated polyimide, the backbone of which comprises an alternation between:

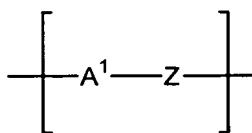
- at least one repeat unit corresponding to the following formula (I):



(I)

in which:

- Y represents a single bond or a spacer group; and
- at least one repeat unit corresponding to the following formula (II):



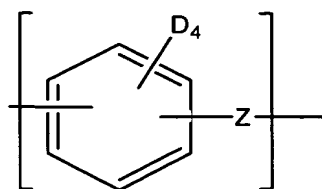
(II)

in which:

- A¹ represents a perdeuterated aromatic group comprising from 6 to 10 carbon atoms; and
- Z represents a single bond or a group chosen from -O-C₆D₄-, -CO-C₆D₄- and -C₆D₄-.

Claim 2 (original) The deuterated polyimide as claimed in claim 1, in which Y, when Y is a spacer group, is a group chosen from -O-, -CD₂-, -CO-, -SO₂- or -C₆D₄-.

Claim 3 (currently amended) The deuterated polyimide as claimed in claim 1 or 2, in which the repeat unit in accordance with the formula (II) is a repeat unit of following formula (IIa):

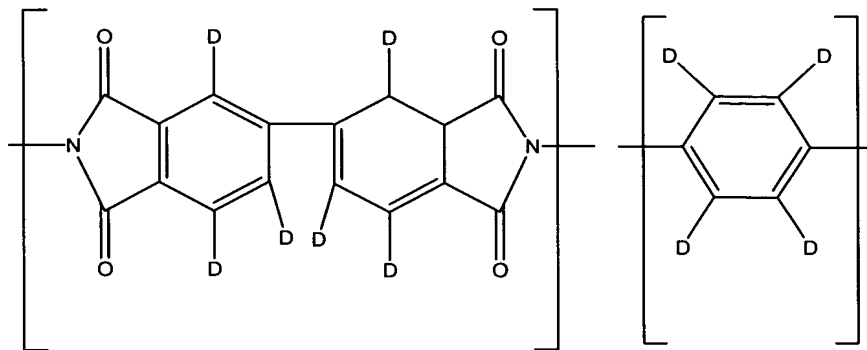


(IIa)

in which Z corresponds to the same definition as that given in claim 1.

Claim 4 (currently amended) The deuterated polyimide as claimed in ~~any one of claims 1 to 3~~ claim 1, chosen from the group consisting of the polyimides chosen from:

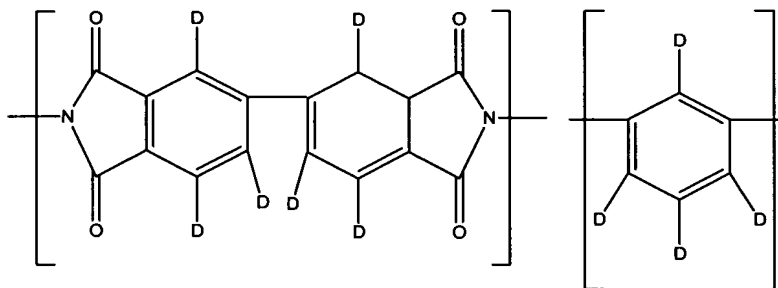
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IIb):



(Ia)

(IIb)

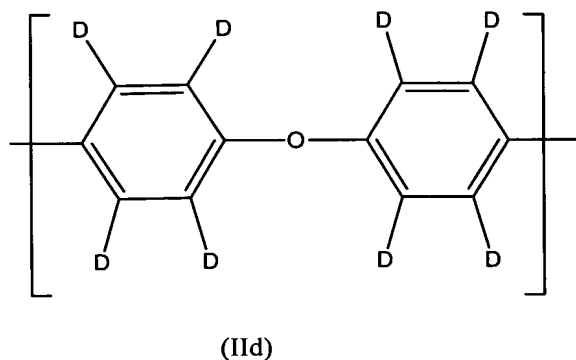
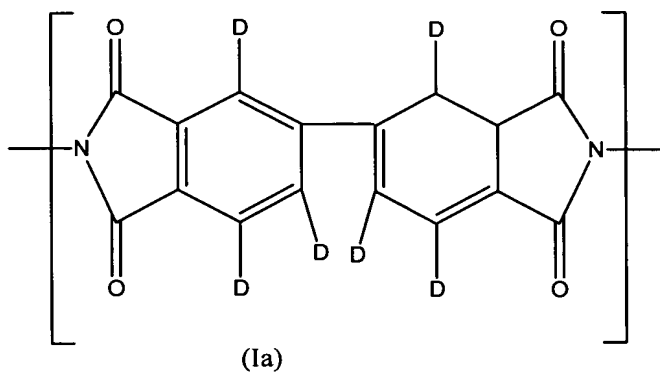
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IIc):



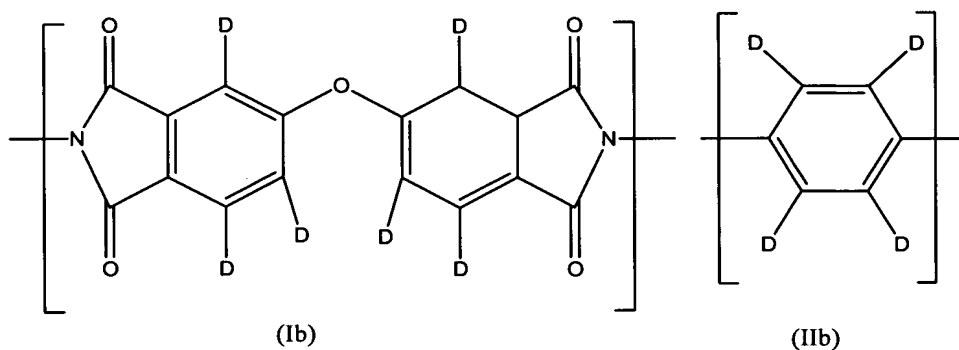
(Ia)

(IIc)

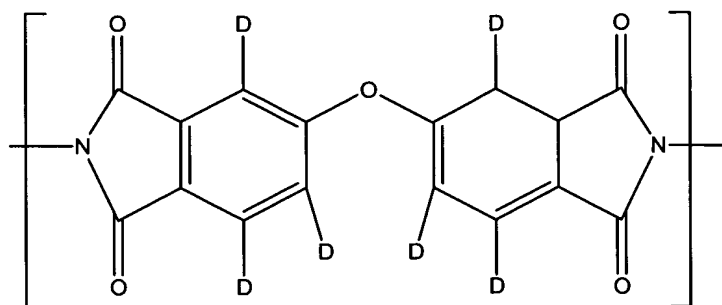
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IId):



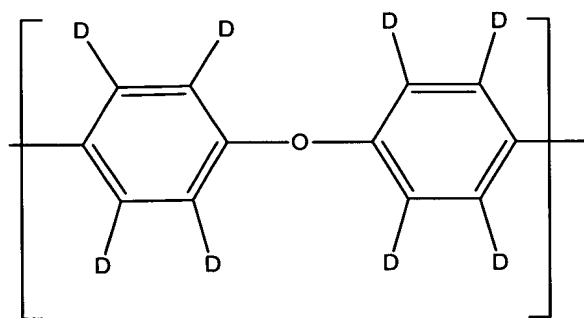
- polyimides comprising a repeat unit of following formula (Ib) and a repeat unit of following formula (IIb):



- polyimides comprising a repeat unit of following formula (Ib) and a repeat unit of following formula (IIId):

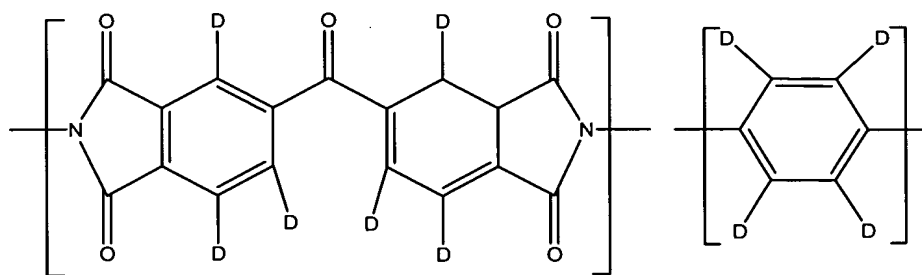


(Ib)

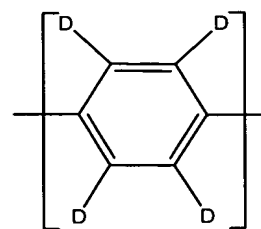


(IIId)

- polyimides comprising a repeat unit of following formula (Ic) and a repeat unit of following formula (IIb):

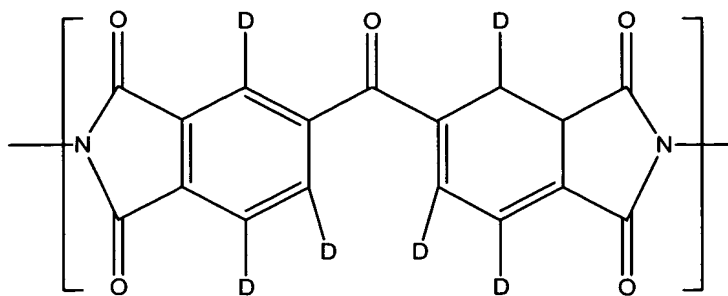


(Ic)

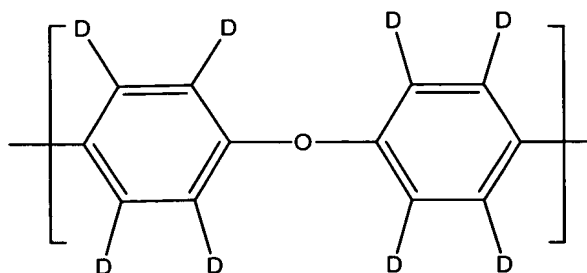


(IIb)

- polyimides comprising a repeat unit of following formula (Ic) and a repeat unit of following formula (IIId):

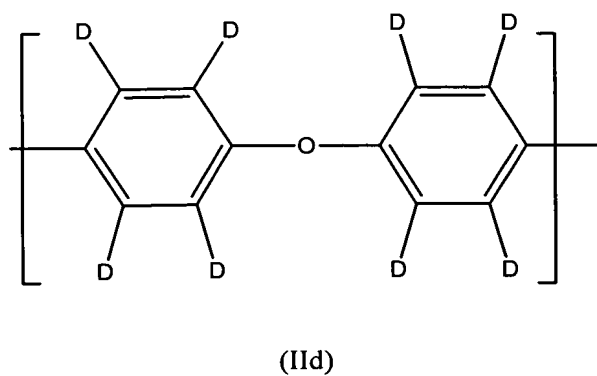
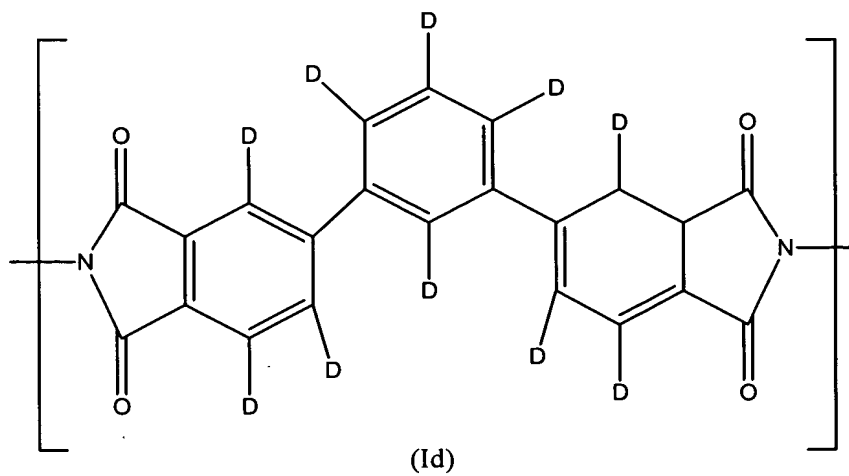


(Ic)

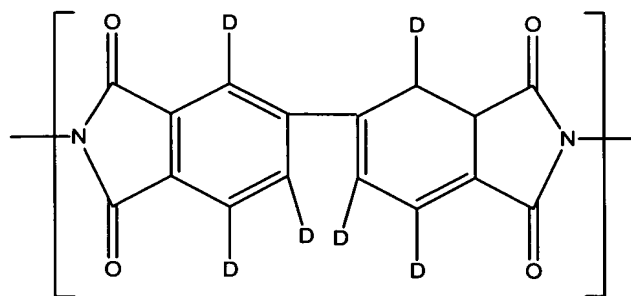


(IIId)

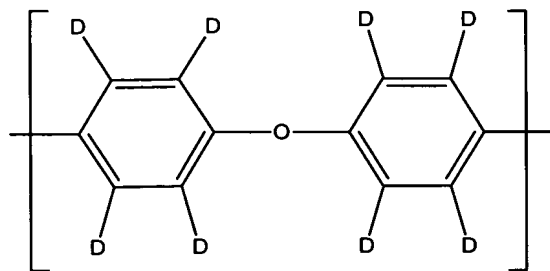
- polyimides comprising a repeat unit of following formula (Id) and a repeat unit of following formula (IIId):



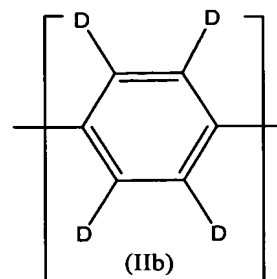
- polyimides comprising a repeat unit of following formula (Ia), a repeat unit of following formula (IIb) and a repeat unit of following formula (IId):



(Ia)

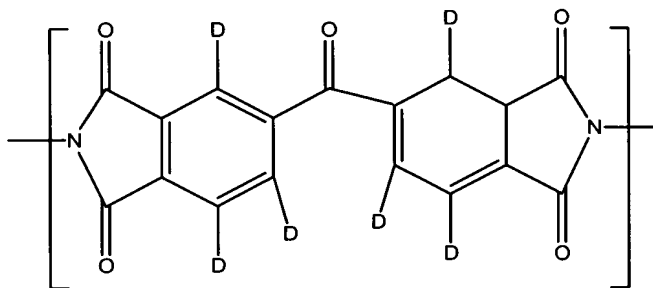


(IIId)

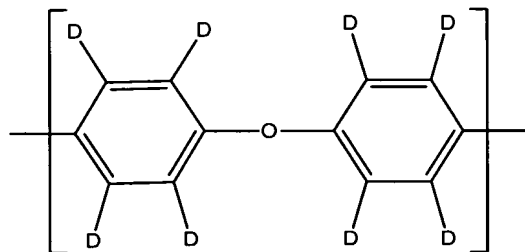


(IIb)

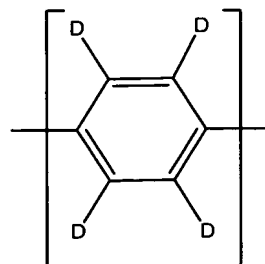
- polyimides comprising a repeat unit of following formula (Ic), a repeat unit of following formula (IIb) and a repeat unit of following formula (IIId):



(Ic)

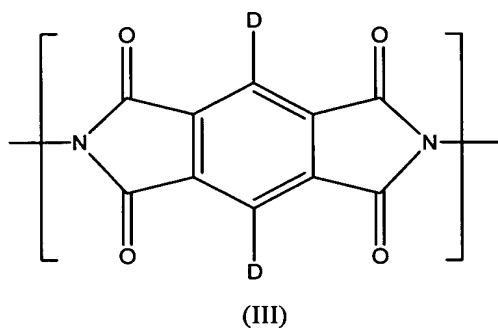


(IIId)

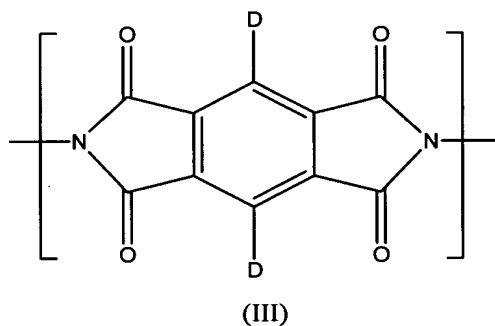
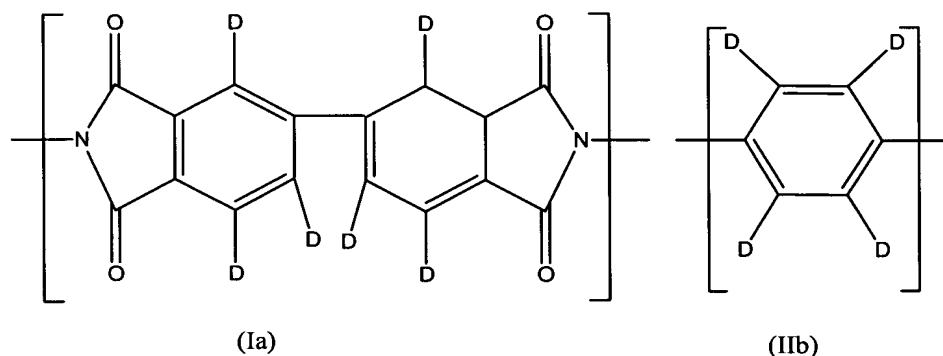


(IIb)

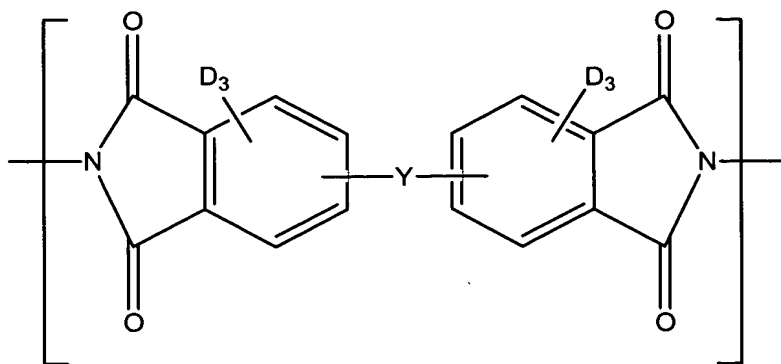
Claim 5 (currently amended) The deuterated polyimide as claimed in ~~any one of claims 1 to 3~~ claim 1, additionally comprising a unit corresponding to the following formula (III):



Claim 6 (original) The deuterated polyimide as claimed in claim 5, comprising a repeat unit of following formula (Ia), a repeat unit of following formula (IIb) and a repeat unit of following formula (III):



Claim 7 (currently amended) A process for the preparation of a deuterated polyimide as ~~defined in any one of claims 1 to 3, the backbone of which comprises an alternation between:~~
- at least one repeat unit corresponding to the following formula (I):

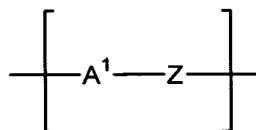


(I)

in which:

- Y represents a single bond or a spacer group; and

- at least one repeat unit corresponding to the following formula (II):



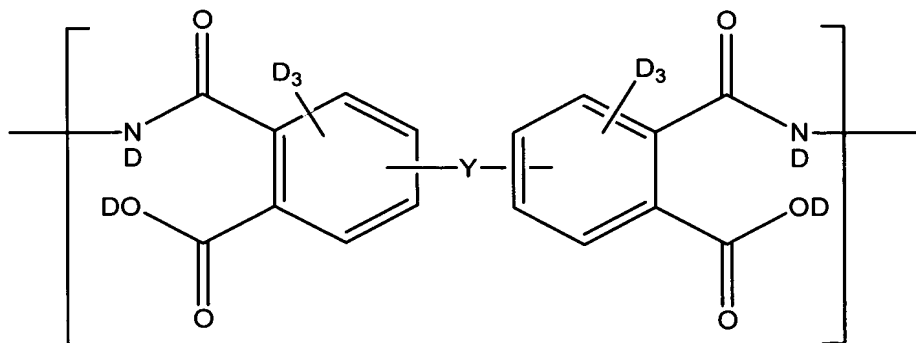
(II)

in which:

- A¹ represents a perdeuterated aromatic group comprising from 6 to 10 carbon atoms; and

- Z represents a single bond or a group chosen from -O-C₆D₄-, -CO-C₆D₄- and -C₆D₄-;

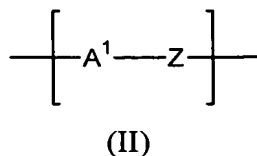
said process comprising a stage consisting in treating, by heating at an appropriate temperature, a solution of a poly(amide-acid), the backbone of which comprises an alternation between at least one repeat unit of following formula (IV):



(IV)

in which Y corresponds to the same definition as that given ~~in claim 1~~ above; and

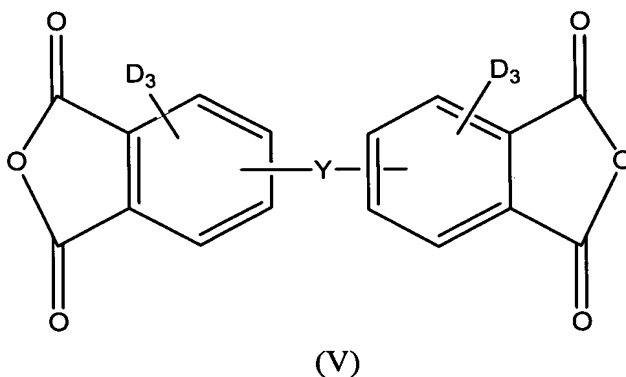
at least one repeat unit of formula (II):



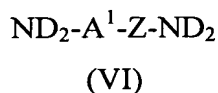
in which A¹ and Z correspond to the same definitions as those given in ~~claim 1~~ above, the appropriate heating temperature being determined so as to obtain complete imidization of said poly(amide-acid).

Claim 8 (original) The preparation process as claimed in claim 7, in which the appropriate heating temperature is a temperature ranging from 80 to 400°C.

Claim 9 (currently amended) The preparation process as claimed in claim 7 ~~or 8~~, in which the poly(amide-acid) solution is prepared by polycondensation, in a solvent, of at least one monomer of following formula (V):



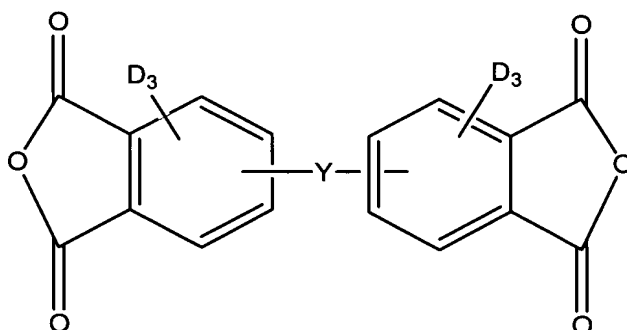
in which Y corresponds to the same definition as that given in claim ~~1~~ 7, and of at least one monomer of following formula (VI):



in which A¹ and Z correspond to the same definitions as those given in claim ~~1~~ 7.

Claim 10 (currently amended) The preparation process as claimed in ~~any one of claims 7 to 9~~ claim 7, in which the solvent is a dipolar aprotic solvent chosen from the group consisting of N-methylpyrrolidone (NMP), dimethylformamide (DMF) and dimethylacetamide (DMAC).

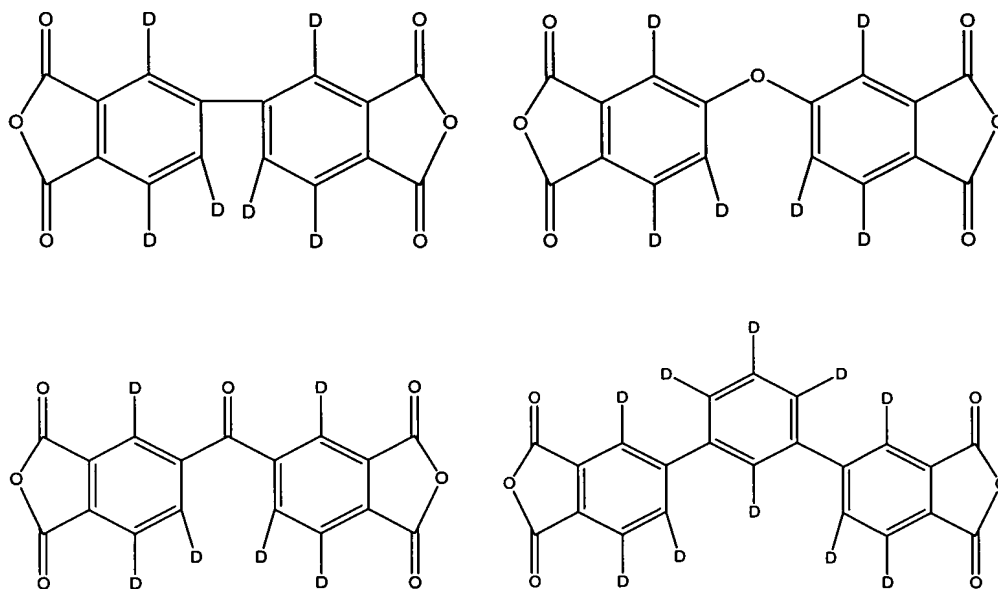
Claim 11 (currently amended) A deuterated dianhydride monomer corresponding to the following formula (V):



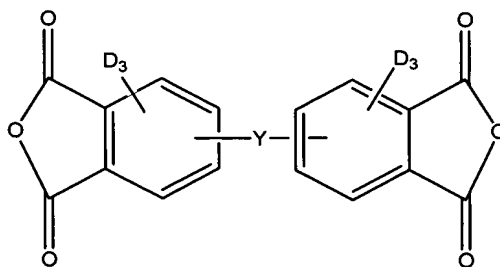
(V)

in which Y corresponds to the same definition as that given in claim 1 represents a single bond or a spacer group.

Claim 12 (original) The deuterated dianhydride monomers corresponding to one of the following formulae:



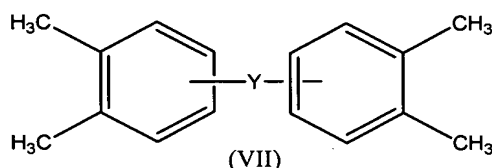
Claim 13 (currently amended) A process for the preparation of monomers of formula (V):



(V)

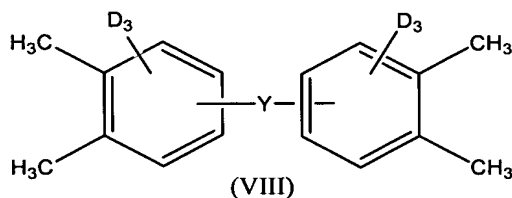
in which Y corresponds to the same definition as that given in claim 1 represents a single bond or a spacer group, said process successively comprising the following stages:

- subjecting a compound of formula (VII):



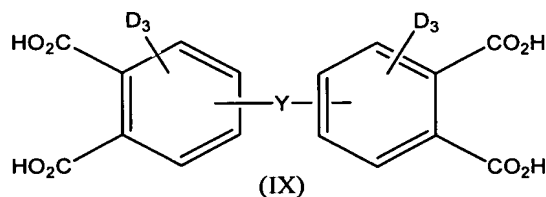
(VII)

to deuteration, so as to obtain a compound of formula (VIII):



(VIII)

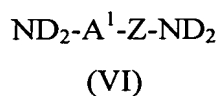
- subjecting the compound obtained above to oxidation, so as to obtain a compound of formula (IX):



(IX)

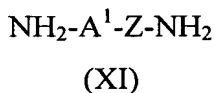
- subjecting the compound obtained above to cyclodehydration, so as to obtain the compound of formula (V).

Claim 14 (currently amended) A process for the preparation of deuterated diamine monomers of formula (VI):

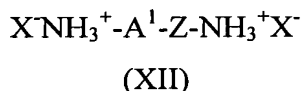


in which A^1 represents a perdeuterated aromatic group comprising from 6 to 10 carbon atoms; and Z represents a single bond or a group chosen from $-O-C_6D_4-$, $-CO-C_6D_4-$ and $-C_6D_4-$ correspond to the same definitions as those given in claim 1, said process successively comprising the following stages:

- reacting a compound of formula (XI):



with an inorganic acid of formula HX, so as to obtain an ammonium salt of formula (XII):

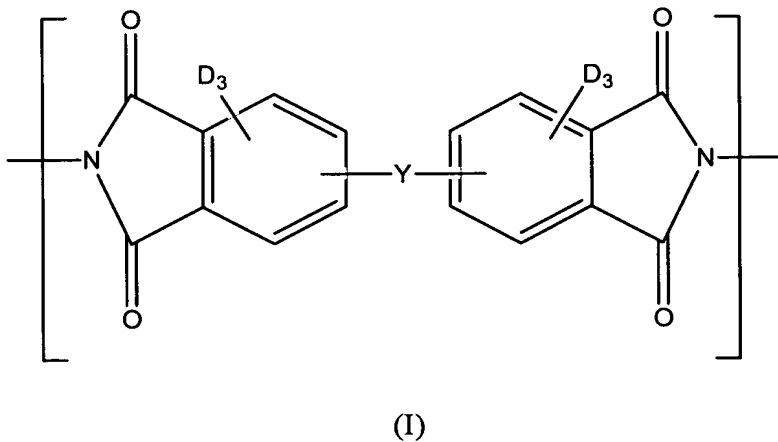


in which X represents a halide;

- reacting said ammonium salt with deuterated water under an appropriate pressure, followed by reacting with a base, so as to obtain the monomer of formula (VI).

Claim 15 (currently amended) A film based on a deuterated polyimide, the backbone of which comprises an alternation between:

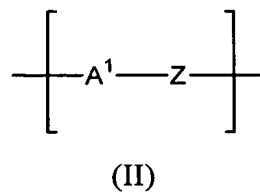
- at least one repeat unit corresponding to the following formula (I):



in which:

- Y represents a single bond or a spacer group; and

- at least one repeat unit corresponding to the following formula (II):

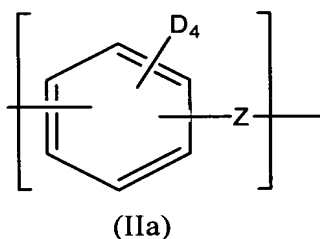


in which:

- A¹ represents a perdeuterated aromatic group comprising from 6 to 10 carbon atoms; and
- Z represents a single bond or a group chosen from -O-C₆D₄-, -CO-C₆D₄- and -C₆D₄- as defined in any one of claims 1 to 6.

Claim 16 (canceled)

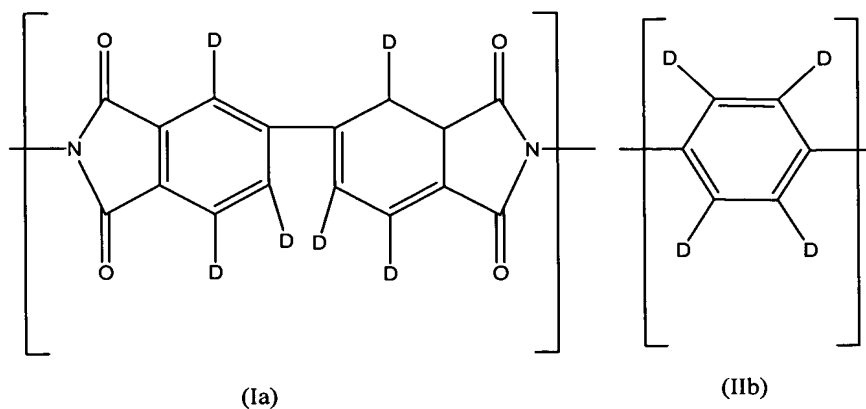
Claim 17 (new) The deuterated polyimide as claimed in claim 2, in which the repeat unit in accordance with the formula (II) is a repeat unit of following formula (IIa):



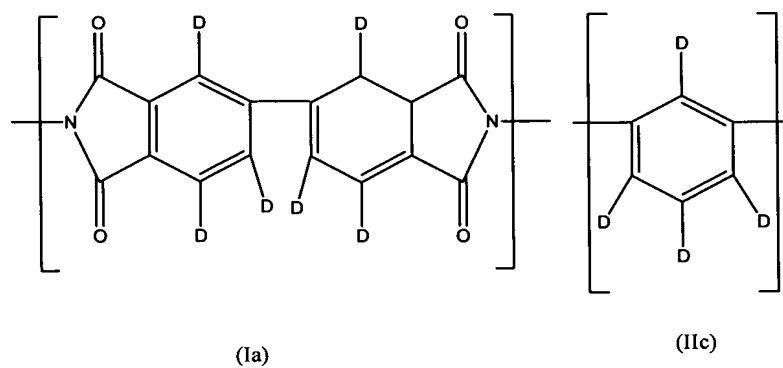
in which Z corresponds to the same definition as that given in claim 1. ✓

Claim 18 (new) The deuterated polyimide as claimed in claim 3, chosen from the group consisting of the polyimides chosen from:

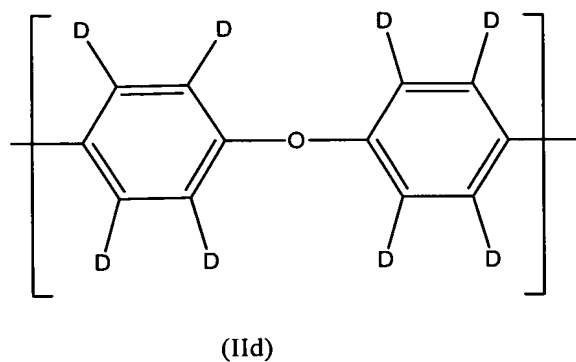
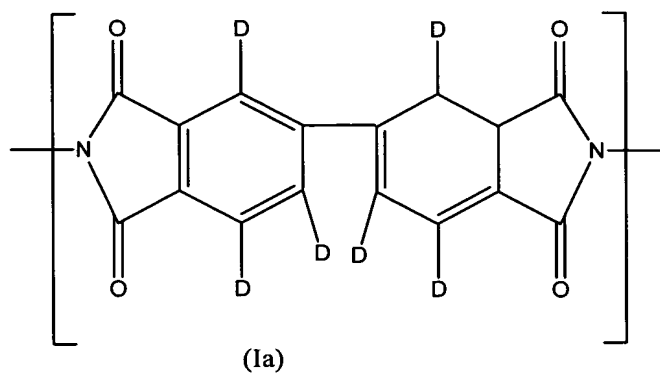
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IIb):



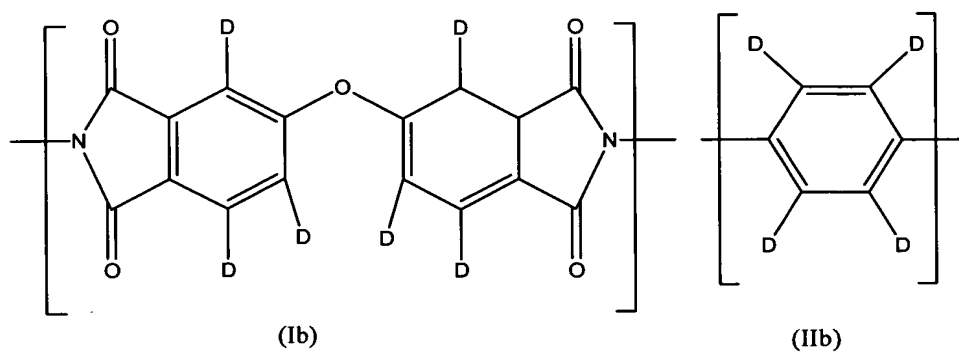
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IIc):



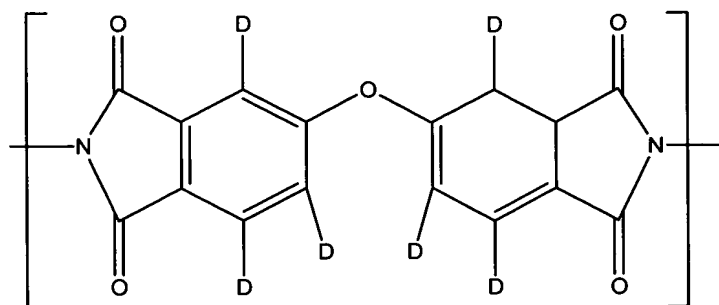
- polyimides comprising a repeat unit of following formula (Ia) and a repeat unit of following formula (IId):



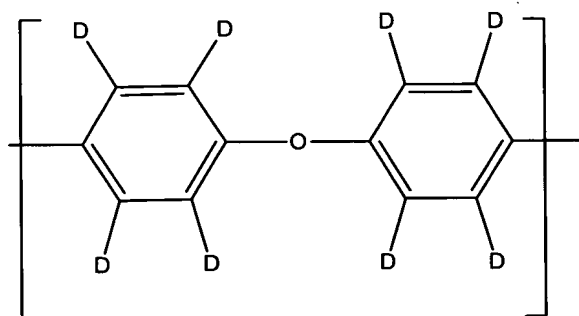
- polyimides comprising a repeat unit of following formula (Ib) and a repeat unit of following formula (IIb):



- polyimides comprising a repeat unit of following formula (Ib) and a repeat unit of following formula (IIId):

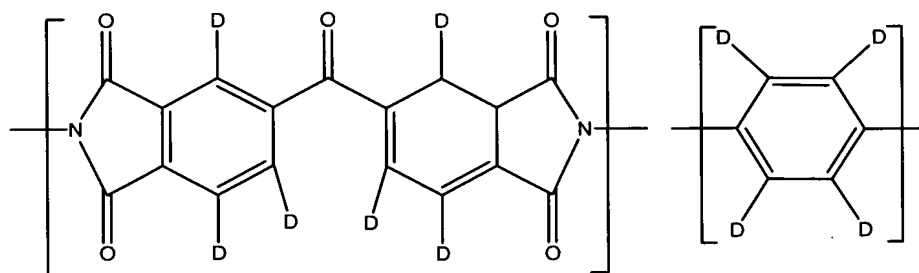


(Ib)



(IIb)

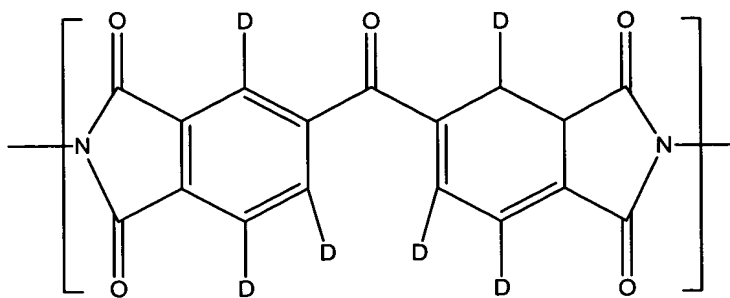
- polyimides comprising a repeat unit of following formula (Ic) and a repeat unit of following formula (IIb):



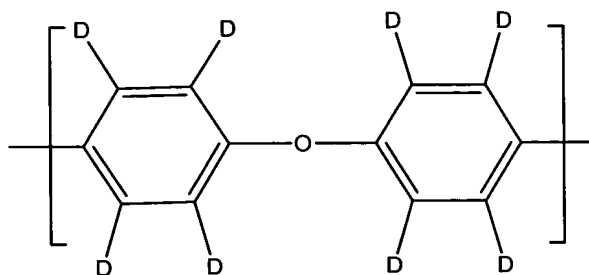
(Ic)

(IIb)

- polyimides comprising a repeat unit of following formula (Ic) and a repeat unit of following formula (IIb):

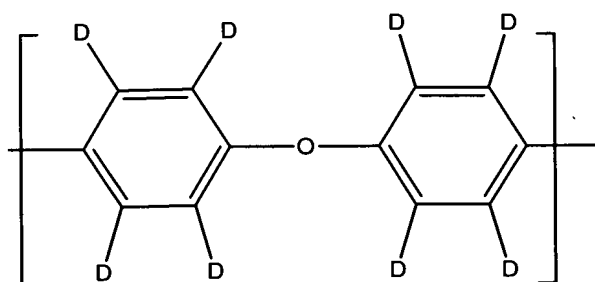
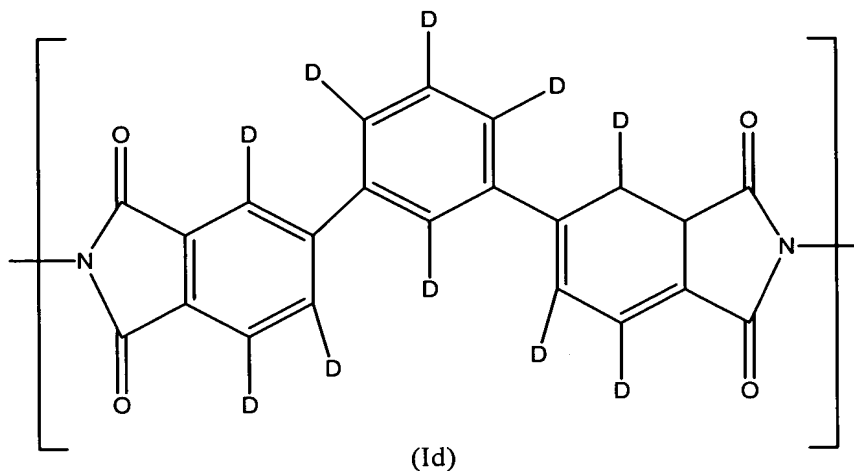


(Ic)

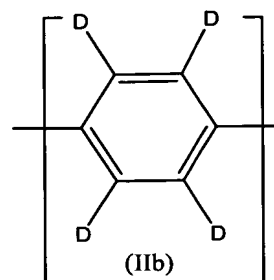
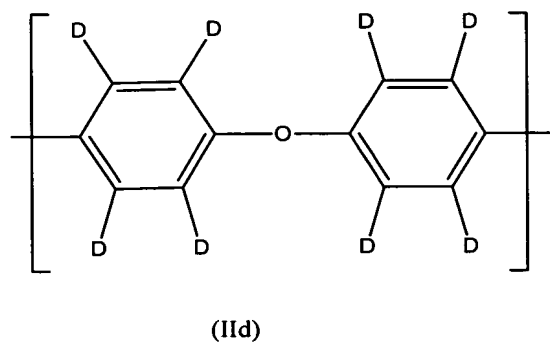
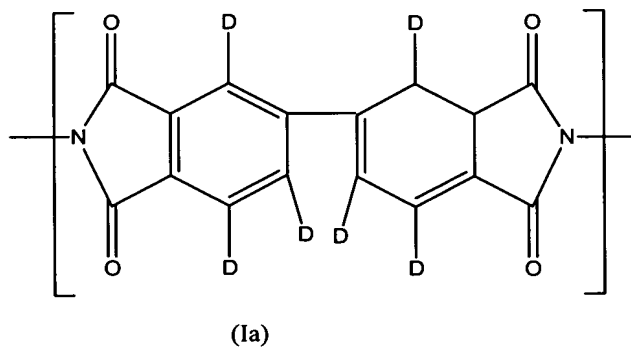


(IIId)

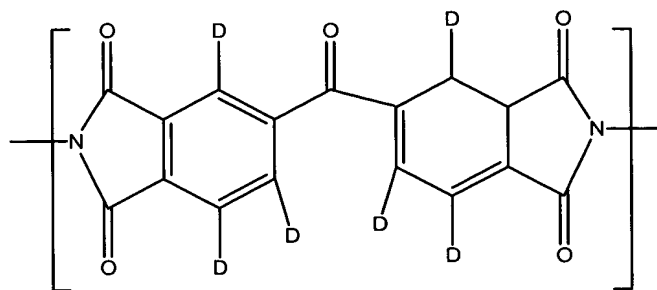
- polyimides comprising a repeat unit of following formula (Id) and a repeat unit of following formula (IIId):



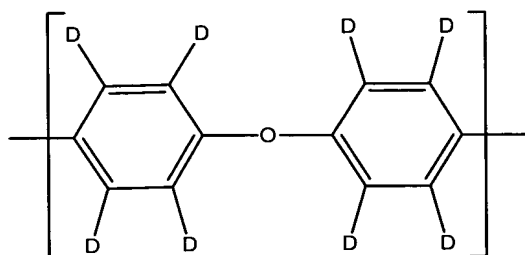
- polyimides comprising a repeat unit of following formula (Ia), a repeat unit of following formula (IIb) and a repeat unit of following formula (IIId):



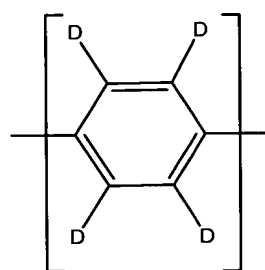
- polyimides comprising a repeat unit of following formula (Ic), a repeat unit of following formula (IIb) and a repeat unit of following formula (IIId):



(Ic)



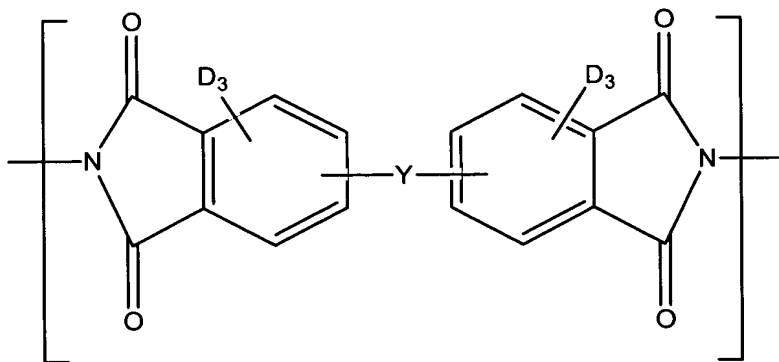
(IIId)



(IIb)

Claim 19 (new) A material which is transparent within the region from 2500 to 3500 cm^{-1} comprising a deuterated polyimide, the backbone of which comprises an alternation between:

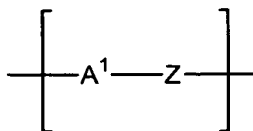
- at least one repeat unit corresponding to the following formula (I):



(I)

in which:

- Y represents a single bond or a spacer group; and
- at least one repeat unit corresponding to the following formula (II):



(II)

in which:

- A¹ represents a perdeuterated aromatic group comprising from 6 to 10 carbon atoms; and
- Z represents a single bond or a group chosen from -O-C₆D₄-, -CO-C₆D₄- and -C₆D₄-.